

Section 3: Hazard, Vulnerability and Risk Assessment

The expansion of the Wildland/Urban Interface (WUI) in Madison County in recent decades has significant implications for wildfire management and impact. The WUI creates an environment in which fire can move readily between structures and vegetation fuels. This assessment examines specific areas in Madison County that have been defined as part of the WUI.

Hazards

Wildfire –Wildfire is an unplanned or unwanted natural or human-caused fire, or a prescribed fire that threatens to escape its bounds.

Drought - Drought, a *prolonged period of dryness*, is a normal part of almost every climate and is actually defined in many different ways. Environmental impacts of drought are the result of damages to plant and animal species, wildlife habitat, and air/water quality; forest and range fires; degradation of landscape quality; and soil erosion.

Landslide -Landslides occur when masses of rock, earth, or debris move down a slope. Sloping areas where wildfires or human modifications of the land have destroyed vegetation are particularly vulnerable to landslides during and after heavy rains.

Vulnerabilities

The following general categories were examined in detail to determine specific vulnerable areas within Madison County:

- Developed recreation sites
- Summer home sites
- Designated communication sites
- Municipal watersheds
- Private land with structures
- Timber areas
- Above-ground utility corridors
- Conservation Reserve Program (CRP) land
- High-use travel corridors
- Wildlife habitat
- Historic areas
- Range land

East Bench – WUI Vulnerability Zone 1

An evaluation of the east bench of Madison County including the Green Canyon Area indicates a high level of light fuels adjacent to the National Forest. Of concern is the possibility of wildfires, started on private agricultural/CRP land to move quickly up timbered draws into the Targhee National Forest.





Also located in the area is the Wright Canyon Campground. The fuel loading is significant in this area. The area was threatened in past years by wildfire. Safety concerns for the campground area include lack of an evacuation plan, single, poorly maintained roadways in and out, and no developed defensible space around the structures.

Heise to North Fork of Snake River Junction – WUI Vulnerability Zone 2

An evaluation of the Heise/Lorenzo area found the same basic conditions as were reported in 2000 by the Dynamac Corporation. They determined that most of the homes are located adjacent to and are visible from major roads. Areas in the riparian zone, lying between the landmarks of Kelly Mountain and the junction of the South and North Forks of the Snake River, are predominantly irrigated agricultural lands with homes along the river with access by county major roads.



This extremely large wildland/urban interface vulnerability zone has significant light brush fuel loading. Many of the homes are built in the trees and fronted by agricultural croplands. There appears to be little if any defensible space around most of the homes. Most of the homes have good road access and the response times to the structures is reported to be approximately 20 minutes. There are no hydrant systems in this area. The Snake River and surrounding irrigation canals provide seasonal water supplies.

Mitigation Projects proposed based on information obtained from the 2000 Heise/Lorenzo Riparian Area Risk Assessment conducted by the Dynamac Corporation in order of priority were:

- ❑ Fuels reduction practices within public and private lands.
- ❑ Develop and maintain water storage tanks at specific locations to reduce the time needed for water transport.
- ❑ Develop an ongoing education and outreach program throughout the assessment area to encourage firewise practices.

These projects have not yet been implemented as proposed.

North Fork of the Snake River Riparian Area – WUI Vulnerability Zone 3

The North Fork of the Snake River riparian area is located on the west end of the county starting roughly at Plano and progressing southward to the River's merger with the South Fork of the Snake River. The area has dense grass and low-lying brush and light timber. There have been three significant wildfires previously in this area.

Menan Buttes/West Desert Area – WUI Vulnerability Zones 4 and 4a

The west end of the county is high desert plain covered with sage and native grasses. The Menan Buttes are located in the southwest corner of the county. Homes located on the Buttes are surrounded with natural vegetation such as sagebrush, cedar trees, and native grasses. There appears to be little if any defensible space around the structures.



Green Canyon Creek/Teton River Riparian Area - WUI Vulnerability Zone 5

The Green Canyon Creek/Teton River Riparian area is located in the northeast corner of the county. The area is primarily in a deep canyon and has heavy fuel loading including dense stands of cedar, pine and other indigenous low shrubs. The area is difficult to access.

Local Fire Response:

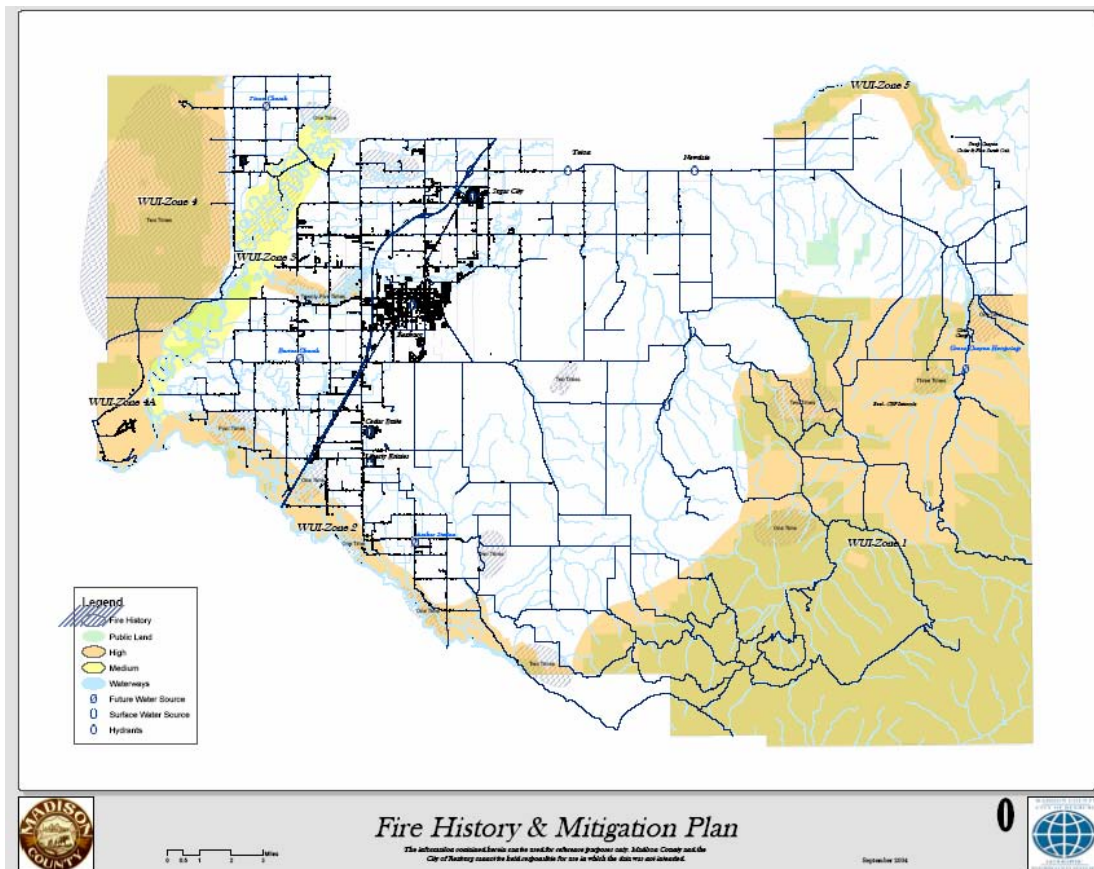
The description of the fire district in Madison County and its respective needs are included in Section 2 and therefore are not replicated here. However, the following analysis was conducted as part of the vulnerability assessment to establish those challenges facing the local fire response elements. During meetings with each of the District Fire Chiefs the following concerns were expressed and documented in several reports found in the Appendices.

- ☐ Lack of adequate water supplies, water distribution systems, etc.
- ☐ Inaccessible structures
- ☐ Narrow roads and bridges
- ☐ Load limits on bridges
- ☐ Inadequate fire plans
- ☐ Inadequate Protection Codes and Code Enforcement
- ☐ Lack of integrated communications, planning, preparedness, and response protocols
- ☐ The need for additional and improved communications equipment
- ☐ Inadequate training of personnel
- ☐ Insufficient staffing and retention of volunteers
- ☐ Insufficient Public Education
- ☐ Fire District Coverage issues
- ☐ Fire Station construction/expansion
- ☐ Need for additional response vehicles and equipment
- ☐ Maintenance and testing procedures
- ☐ Lack of Resources, need for assistance in obtaining grants and other funding

The challenges facing the Rexburg-Madison County Emergency Services Dept. are not unlike those facing most rural fire districts throughout the U.S. The need for additional labor, vehicles, equipment, and training are all common challenges facing rural departments. The Rexburg-Madison County Emergency Services Dept. faces these challenges and others listed. The current response capability, while it could be improved, is adequate for most of the response areas within the county. However, there is a need for fire apparatus suitable for fighting wildland fires.

Risk Assessment

The established wildland/urban interface zones are represented on the following map. An expanded view of the map is available in Appendix 6.



East Bench – WUI Vulnerability Zone 1

- Heavy fuel loading in canyons and draws
- No defensible space in Wright Canyon Campground
- No static water supplies
- Poorly maintained roads in camping areas
- No evacuation planning
- Lack of firefighting equipment

Heise to North Fork of Snake River intersection – WUI Vulnerability Zone 2

- Heavy fuel loading
- No defensible space
- Seasonal static water supply
- One way in and out
- No evacuation planning
- Lack of firefighting equipment

North Fork of the Snake River Riparian Area – WUI Vulnerability Zone 3

- Light Fuel Loading
- No defensible space
- Seasonal static water supplies
- Evacuation Planning
- Lack of firefighting equipment

West Desert Area – WUI Vulnerability Zone 4

- Moderate Fuel Loading
- No defensible space
- Seasonal static water supply
- One way in and out
- No evacuation planning
- Lack of firefighting equipment

Menan Buttes – WUI Vulnerability Zone 4a

- Moderate Fuel Loading
- No defensible space
- Seasonal static water supply
- One way in and out
- No evacuation planning
- Lack of firefighting equipment

Green Canyon Creek/Teton River – WUI Vulnerability Zone 5

- Heavy fuel loading
- No defensible space
- Seasonal static water supply
- One way in and out
- No evacuation planning
- Lack of firefighting equipment

Table 1 is the evaluation of risk probability versus consequence. The table compares the identified hazard with potential threats to life, property, and the environment. The ranking criteria are presented in Table 2.

Table 1 Risk Ranking

Risk Analysis				
Identified Hazards	Life Safety	Property Damage	Environmental Damage	Economic Impact
WUI Zone 1	Medium	Low	High	Low
WUI Zone 2	High	High	High	Medium
WUI Zone 3	High	High	High	Low
WUI Zone 4	High	High	Medium	Low
WUI Zone 5	Medium	Low	Medium	Low

Table 2 Ranking Criteria

Consequence Criteria		
Life Safety	Low	Injuries limited to the area of effect. < 10
	Medium	Serious injuries >10
	High	Multiple fatalities, critical and serious injuries
Property Damage	Low	Minimal damages
	Medium	Structural damages evident
	High	Loss of structure
Environmental Damages	Low	Minimal impact at area of effect
	Medium	Regional damage
	High	Long-term recovery. Requires significant after action
Economic Impact	Low	Economic impact minimal
	Medium	Loss of business
	High	Regional long term loss